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Rec'd March 9th

A Dissertation on Fevers —

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admitted March 22d. 1821

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On Fevers.

Though a trite subject, fever must ever continue to be one of secondary importance to none, that can become the object of curious speculation, or of the more useful investigation of the practical enquirer. Surely, if the majority of mankind are carried out of the world by febrile diseases, the attention of those, in whom is reposed the sacred trust of superintending and ministering to the corporeal welfare of the human family, cannot be too often invited to the contemplation of these diseases as they present themselves under similar or variegated aspects.

Facts and observations, dispersed throughout a countless profusion of volumes and pages, and drawn from sources of endless variety, constitute the basis of modern sci-

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nce and of modern practice. If the following essay have not the blaze of achievement, or the concinnity and elegance of composition, that may give it acceptance with tastes differently cultivated; it will, I hope, be found to contain, at least, some suggestions, not unworthy the attention of the accurate observer. Mine is an humbler aim than the exalted strain of those, to whom we accord the enviable distinction of being called the great benefactors of mankind.

As preliminary to what will be said of the particular kinds of fever, I shall offer some speculative views of the nature and phenomena of febrile action; followed by some observations on the sympathies and the modus operandi of medicines. This may be thought an unnecessary aberration. But, ex pede animus.

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The human body, as well as that of other animals, is a machine of very complicated structure; consisting of many powers and weights or antagonizing parts, all of which are modified and governed by the particular economy of each individual; with the operation of which, both in health and disease, we are, as yet, very imperfectly acquainted. Or it may be said to be a compound of various subsystems, in some degree, distinct and independent, yet, not so far but that, each and all of them may be affected through the medium of any one.

The muscles, for instance have an inherent power of contraction, independent of the nerves, but, by irritating the nerve supplying the part, they are thrown into action. In like manner the heart and arteries are excited by their appropriate

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stimulus, yet they may be powerfully affected through the nervous system. The capillary bloodvessels, again, have a power in themselves of circulating their contents; but do not deny the influence of the nerves and of the heart and larger arteries. Deprived of the first they are unable to perform the office of secretion. Without the last they propel their contents more feebly. The nerves and sensorium commune, though intimately connected, perform distinct functions. The latter exercising a more immediate influence over some of the involuntary actions, whilst the voluntary appear to be more dependent on the former. No part of the machine holds a paramount or more diversified influence than the stomach and intestines, and none are more readily affected by derangements of other parts.

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An exact equipoise of these powers ~~and~~ checks and motions constitutes perfect health. In what manner, and how far, the derangement of one of these systems tends to destroy this equilibrium, the imperfection of our knowledge does not allow us to speak with any degree of confidence or certainty. We know, however, that sometimes one of them only, becomes disordered, the rest remaining sound or nearly so, and performing their healthy actions. At other times, several of them may participate in the same morbid train, by their reciprocal influence, aggravating and multiplying the mischief, until finally the whole congeries becomes implicated in the disease.

Which of these systems is primarily affected in fever is not very certain; and probably this is not uniform. The circula-

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tory, however, if it be not the first, soon participates and often gives the first evidence of the disease. The capillaries, I am persuaded, almost always become disordered before the heart and larger arteries; the disturbance in these being an effort of the natural powers to surmount and remove the inconvenience of the first not performing their healthy functions.

In what this diseased condition of the capillary vessels consists, is a question of some difficulty. It is, however, very different in different cases, and is much influenced by the nervous system. Thus we see them, at one time, forming the specific poison of some contagious or infectious disease; at another time, morbidly secreting animal heat. Again we find them pouring out, in excess, the serous part of their contents; and yet at other times, we find them

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performing these actions not at all or very imperfectly.

From what has been said above, it will be seen that I consider animal heat no less a secretion than the insensible perspiration, the sweat, or the moisture of the mucous surfaces. The influence of the nerves over the other secretions will not be denied; nor is it less obvious in the production of animal temperature and febrile heat. The increased influx of blood is generally considered the cause of the increase of temperature in a part inflamed. This opinion was entertained by Mr John Hunter, and he asserts that the heat of inflammation never exceeds that of the blood at the centre of the circulation. This, however, appears not to have been very clearly made out; and, even if it be conceded, does not

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disprove the position I have taken, that animal heat, like the other secretions, is evolved by the action of the nervous influence on the blood in the extreme capillaries. The lungs are not more the great focus of heat in the living body, than any other part equally supplied with nerves and bloodvessels. Were it possible for the other powers and actions to remain in full force and vigor, the nervous influence being suspended, there would be no greater production of heat than in an hydraulic machine of similar structure. The following facts are thought to give some support to these views of the subject under consideration.

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as in the operation for popliteal aneurism, is sometimes followed by an increase of temperature in the part thus deprived of the usual quantity of that fluid. If warmth be dependent upon the quantum of blood, then a diminution in the afflux of this should be followed by a corresponding reduction in the heat of the part; but, as we have seen, exactly the reverse of this sometimes takes place. The increase of temperature in this case is, probably, the effect of nervous irritation.

That an augmentation of heat is not a necessary consequence of increased vascular action is shewn by the fact that however this may be excited by exercise or other means in health, we do not find a corresponding increment of temperature, to what is observed in febrile excitement.— In the phlegmatia dolens, incident to puerperal

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women, there are heat, swelling and some other marks of inflammation, but without the redness which is commonly recognised as one of the characteristics of inflammatory action. Here there is no preternatural influx of blood and the phenomena are, perhaps, the effect of irritation, from injury done to the obturator or crural nerves, increasing the action of the exhalants.

There is another fact, which, in my view, is still more decisive. The preternatural warmth of the palms of the hands and soles of the feet, in the hectic of consumption and other febrile conditions, is a matter of common observation. But in the last stage of fever, at the very approach of dissolution, when the vital powers were ebbing along with the "purple tide" to their citadel the heart; the pulse either

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not to be felt at all, or feeble, fluttering and irregular; the extremities cold and clammy; the breathing interrupted and laborious; in this very feeble state of the circulation, I have frequently seen the hands and feet, particularly the latter, become suddenly much warmer, and continue so some time after death. In all the cases of this kind, that have come under my observation, this change has been confined to the hands and feet, the limbs and other parts of the body remaining cold and cadaverous.

It is not unfrequent that, after death particular circumscribed parts will be found much warmer than the rest. A satisfactory explanation of this curious phenomenon is a matter of no little difficulty. As there is here no afflux of blood to the part, the conclusion is

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irresistible that the increase of temperature is the result of local action, and that is what we wished to prove. Can we then suppose any other agent than the nervous influence? None, it is presumed will contend that there is any thing of chemistry in the case.

In addition to what has been already said, it may be observed that, it has not yet been determined that there is an increased perflux of blood through a part in the state of inflammation. The results of experiments on this point are somewhat contradictory. For various reasons, a detail of which would here be out of place, I am inclined to the opinion that, generally, there is a diminution rather than an increase of the quantity passing through the part in a healthy condition.

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Any one, who ~~who~~ will examine, can readily see the inadequate and unsatisfactory nature of all the theories or rather hypotheses of the generating and distribution of the heat of the living body, notwithstanding the enthusiasm and confidence with which these doctrines have been, at different times, promulgated and supported by their inventors or advocates.

The blood preserves its fluidity by means of the latent heat it contains. This being extricated becomes sensible heat. Whatever may be the nature of the agency of the nervous influence in the production of animal heat, and however inexplicable it may be, there is no doubt in my mind that, to it, in some way, must be referred this mysterious phenomenon.

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In very cold climates the standard force and frequency of the pulse is not more than half what it is between the tropics; and yet we find but an inconsiderable difference in the temperature of the bodies of the Laplander and of the African. If animal heat be generated by respiration, then should all animals that respire be warm blooded; but this we know is not the case. Whenever any cause fails, in many instances, to produce what is supposed, its correspondent effect, may we not suspect some error in the hypothesis?

The increased evolution of heat and of the fluids of secreting surfaces alternate with each other. Thus in inflammation much heat is evolved, but the natural moisture of the

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surface disappears. Of this incompatibility of an augmentation of heat with other secretions I shall speak more particularly, when I come to treat of the sympathies and modus operandi of medicines.

From what has been said we come to the conclusion that the augmented evolution of heat, both in local inflammation and in general fever, is produced by a disordered condition of the extreme capillaries and nerves, superseding the healthy influence of the vital energies. Secondly, that this result is mainly independent of the heart and larger arteries, the excitement in these being, as before stated, an effort of nature to overcome the previous disorder, or remove the obstruction; and in this way febrile excitement supervenes.

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The better to explain the phenomena of disease and the modus operandi of medicines, we will say something of those sympathies which have so great influence over the animal economy. By a proper investigation of this subject, we shall be able to establish something like rational method in the treatment of diseases, and supplant that empiricism, which, even now, too much characterizes the most distinguished of the profession.

Whether there can be sympathy between parts that have no direct nervous communication is a question, which has caused some discussion among medical men, in different parts of the world. That such intervention is not necessary I am fully satisfied. Since, the brain and whole nervous system may be con-

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sidered, in one sense, as an unit; yet in the distribution of them, the nerves are, in many parts, distinct; and we frequently find the strongest sympathies between parts very remote as well as contiguous, in which it would be extremely difficult to trace any such communication. In disease these are often very obvious.

How far the vascular system, particularly the extreme capillaries, in different parts, may sympathise without the intervention of direct nervous influence is a point, which, from their intimate connection, can never be determined. That they have this bond of union, and that impressions made upon them in one part will be almost equally felt in another, cannot be denied. The knowledge of these facts has had

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no small share in the improvements in modern practice, and we may yet expect that still greater will be derived from the further investigation of this subject, with industry and judgment.

To have discovered the intimate sympathetic connection between the skin and various other surfaces and organs required no peculiar acumen of observation. Every day's experience gives evidence of this, by the diseases and derangement of functions in the different viscera, such as the stomach, the intestines, the lungs, the kidneys &c, by external agents. The effects of medicines and other matters, taken internally, on the skin were no less obvious. A close attention to these will ever be eminently useful in the practice of medicine.

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pathy, which seems as yet to have passed altogether unobserved or, at most, but slightly noticed. It is that between the skin and hepatic system.* My attention was early turned to this from daily observing the great influence of the summer sun, in the southern country, in producing bilious and other hepatic diseases. Although this, so far as my knowledge extends, has heretofore been but little attended to, I am well apsured that it is the grand medium and primal cause of most of the diseases of all warm climates. This clue will not only aid in the investigation of the pathology of these

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* Since first writing the above I have seen the work of Johnson on the diseases of Tropical Climates, in which this subject is amply investigated.

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diseases, but will, I am persuaded, direct to more correct views and modes of practice.

The stomach, enthroned in the centre of the microcosm, exercises a despotic control over every part of his empire. None so remote as not to feel his influence; none so aspiring as to affect pre-eminence; none so perverse as not to do him reverence. So great and diversified are the powers and sympathies of this organ, that it may justly be termed the focus of the vital energies. Languido ventriculo omnia languent. In health it imparts tone and vigor to all; in disease all other parts deplore the suffering of this vital organ. Nor is its influence less evident, when addressed by proper remedies, in removing the diseases of other parts. When judiciously prompted and supported by the apes-

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tance of art, it invigorates the feeble and subdues the violent inordinate action of the heart and arteries, preserving order and restoring equilibrium. If the brain and nerves be disturbed it tranquillizes their wayward aberrations. Should the skin and mucous surfaces be constricted, or otherwise unable to perform their healthy functions, it gently extends its benign influence over them and, by promoting relaxation, perspiration and effusion, establishes a more salutary mode of action. The glandular and absorbent apparatus being languid and oppressed, it emulges the one, as the liver, the kidneys, the pancreas &c. and stimulates the other to the more vigorous performance of their office. In short, there is no state of the system in which the stomach has not a material agency.

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To the brain, considered as the sensorium commune, the source of the nerves and the seat of the passions, we must undoubtedly accord a widely extended influence and sympathy with other organs. The heart, the stomach, the liver, in an eminent degree, recognise this connection. Thus we see the whole system is a concatenation, or rather congeries of parts, distinct, but collectively dependent upon each other; so that no material alteration or impression can be made upon one, without the whole feeling and sympathising with the part primarily affected.

We come now to say something of the modus operandi of medicines in accordance with the views already advanced, and shall commence with bloodletting. This, like every other article of the Materia Medica, if it may be so called, has

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at different times and by different persons, been variously estimated as a means of combatting disease. The distinguished advocates on either side of this, as well as all other questions where mathematical certainty is not attainable, have run widely to one or the other extreme. Some contending that it should be almost entirely repudiated from the practice of medicine, whilst by others it has been, with no less infatuation, too fruly and indiscriminately adopted and recommended.

"Felix qui potuit medicum cognoscere tutum. It is not my intention here to enter into this controversy. The utility of the practice is now too firmly established to be hereafter shaken by the cavils of interest or scepticism, or by the caprices of medical fashion.

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haps, in all general fevers, there is some interruption of the balance of the circulation as well as of the excitability. This is a necessary consequence of the weakened condition of the extreme capillaries, by which they are disabled from carrying forward their contents with the usual velocity. The powers of the system being directed to overcome the difficulty, a preternatural quantity of blood is directed to the debilitated part; and thus turgescence and engorgement are produced. In some cases nature alone is able to surmount the impediment; but, where she fails, the effort itself aggravates the mischief. The small vessels, already loaded and oppressed, are still more and more exhausted by the increased afflux, till ultimately their power is entirely destroyed and mortification is the consequence.

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It may and often does happen that, nature alone, or when properly aided and supported by art, prevents this unfavorable crisis. The enfeebled capillaries, which, in this condition, are generally secreting a preternatural quantum of heat, are prompted to another mode of action and, after the effusion of sweat, serum or of coagulable lymph, they again take on healthy action. There is yet another mode of termination in inflammation and congestion, which, I think, may with no great impropriety, be called a species of resolution; that is by haemorrhage. This may take place in two ways; first, by rupture; secondly, by effusion from the dilated extremities, without rupture. These may, however, be combined. The difference between active and passive haemorrhage is probably this; in the first there is more

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general excitement, with rupture; in the last there is lip excitement, and, probably, without rupture.

Resolution is promoted by various means local and general. Some act by derivation, others by directly increasing the power of the part suffering, and others again by increasing the force of the action of the heart and larger arteries and other powers of the system. Bloodletting, the most powerful of all remedies, acts in a manner somewhat different from all these. By their elastic and contractile property, the arteries are enabled to adjust themselves to the quantum of their appropriate stimulus in the system. If blood be copiously drawn the arteries still remain replete, and their power of propelling their contents is relatively increased. If we diminish the weight to be moved, we thereby

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relatively increase the power. Hence what remains in the circulation, after venesection, will, probably, have an equal momentum to that with which the whole was propelled, previously to the subduction of a part. It may even be greater, for the heart, which was before burthened and oppressed, is now free to act with its wonted vigor.

The diminution of the calibre of the arteries, immediately in the vicinity of a part in the state of inflammation or congestion, communicates a disposition to contraction to the capillaries themselves of the part diseased. In addition to this, where there is great determination to the head, the nervous energy, so essential to the healthy action of every part of the machine which was previously locked up and obstructed, is now liberated and diffuses

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its saluterary influence to every part of the system. Here then we have different results all conspiring to the same grand object, the relief of the part or parts immediately under the influence of disease.

The use of this remedy is much more imperiously required in some kinds and stages of fever than others. In the genuine inflammatory fever and the phlegmasiae, we not only use the lancet freely, but, also, bring to our aid various other depleting measures, purging, sweating &c. After due evacuations, local applications sometimes contribute much to the accomplishment of the cure.

In that state of the system commonly distinguished by the terms suffocated excitement or congestive fever, in the opinion of many, the lancet becomes a more doubtful remedy, and requires much

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greater discrimination in its employment. I am, however, persuaded that, in the commencement of most of these cases, it may not only be resorted to with advantage, but that it is imperiously called for, and is the most efficient means of relief. Prompt and vigorous auxiliaries here also become necessary, and sometimes must be used preparatory to venesection.

Nor is it incompatible with the views already advanced that, we should occasionally adopt, what are commonly considered, contradictory modes of practice; stimulating powerfully at the same time that we deplete copiously. These stimulants may be either external, as the warm bath and frictions with stimulating articles, or internal, as wine, volatile alkali, opium &c, or they may be combined.

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Dissections have shewn that the great prostration of strength and other nervous symptoms, if not produced, are generally accompanied by great turgescence of the small bloodvessels of the brain or spinal marrow, or both. It is probable, however, that the vascular and nervous systems have a reciprocal influence, and, therefore the practice just recommended becomes the more rational.

It is not our intention to say that, there is no febrile condition, in which bloodletting may not be used. I have myself employed it where it was detrimental, changing immediately a remittent to a typhus fever; and this too where there was no strongly marked tendency to the typhoid type. In some fevers of this last character, originally, it is, also, extremely hazardous. Topical blood-

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letting, vomiting, purging, blistering, the warm and cold bath, and stimulating as occasion may require, in these cases, are much safer and promise greater success. —

Emetics next demand our attention. By almost universal consent, these are regarded as indispensable in the treatment of most kinds of fever. It is not, however, as mere evacuants of the stomach and duodenum that emetics are productive of such beneficial effects in the cure of fevers. Through the medium of the universal sympathies of the stomach, their operation is more or less felt throughout the system. The brain, the nervous, the circulatory and the glandular apparatus, are not more powerfully affected by any remedies than emetics.

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The biliary organs particularly are stimulated, not by sympathetic influence merely, but, also, by mechanical agitation. Of equal importance are the effects of emetics on the skin. By equalizing excitement, they determine to the surface, relax spasm, supplant the morbid generation of heat and produce perspiration. With these diversified powers, their utility must indeed be very great.

Nor are purgative medicines of less importance in the management of all febrile diseases. Much has of late been said on this subject and, therefore, the less here is requisite. I would, however observe that not the only and, perhaps, not the greatest advantage derived from the use of cathartics, is to be ascribed to their removing acrid, irritating and offensive matters from the primae viae;

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or to their operation as general depleting remedies. However necessary their employment may be, with these views, we expect not less beneficial effects from the strong and intimate consent between the first passages and other organs.

Diaphoretics have, in all ages, maintained an undisputed rank among the remedies for fever. So great has been their reputation that, by some, they have been almost solely trusted in the management of these diseases. Nature herself seems to have pointed to and intimated the propriety of this practice, as, in this way, the system most generally throws off the diseased and takes on the healthy action. The manner in which different articles of this class operate to produce their effects is, probably, very different. In fact, all the preceding articles and whatever tends to subvert that

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condition of the superficial capillary vessels, in which there is a preternatural secretion of heat, have also a tendency to promote perspiration.

The application of water, either tepid or cold, as circumstances may require, is an important means in the treatment of fevers. Nothing more powerfully promotes reaction and the restoration of the balance of the circulation and excitability in the commencement or cold congestive stage of fever than the warm bath. Cold affusion and the topical application of external refrigerants are not less useful in the hot stage. Where there is nothing to contraindicate its employment, the cold bath will frequently cut short the disease and restore the healthy actions. Ablution and aspersion are sometimes employed with great advantage.

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The modus operandi of cold water when applied in this way is perfectly intelligible. It directly abstracts heat, subverts that mode of action in the capillaries by which it is evolved, and, by the shock given to the whole system, interrupts morbid irregular associations, restoring equilibrium.

There is a practice, with whom it originated I know not, which I have employed with very great benefit in some cases. In congestion with great determination to the head, the patient is immersed in the warm bath, at the same time a stream of cold water is poured over his head. This, I am told, has, also, been done by an eminent practitioner of Nashville, Tennessee, with the most signal advantage. Until lately, I was not aware that this practice had been elsewhere adopted. In the second volume

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of the Transactions of the Dublin College, I find something similar recommended, by an Irish physician. He, however, only applied cloths to the head wet in cold water and vinegar.

Mercury, in different forms of pharmaceutical preparation, has been not a little employed in febrile diseases. I speak of it now not as a cathartic, but as a sialagogue. The manner in which this medicine operates is perfectly sui generis, and has never been satisfactorily explained. It will not be expected that I should compass this point. Nor is it my intention to enter into the much agitated question, whether or not mercury enters the circulation. I shall merely observe that, although I think it not improbable that it may be taken up in this way, yet, in many instances, it would appear to

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produce its effects, like most other medicines, through the medium of the sympathies of the stomach. The obvious connection of this kind between this organ and the salivary glands may account for these being so readily affected by the medicine. A dose of calomel, given to purge, I have frequently seen produce violent salivation. Three or four grains, also, given ~~to~~ with this latter intention, I have several times seen produce the same effect. A grain or two of corrosive sublimate will speedily induce profuse ptyalism, if or a few hours. We can hardly suppose that in this case it enters the circulation and is so speedily neutralized or discharged.

The mercurial treatment of fevers is confessedly most effectual, yet, to say the least of it, is extremely harsh and should

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never be resorted to, except from the most imperious necessity. My object in introducing it here, was chiefly to animadvert upon a practice, or fashion, among some of the profession, of too indiscriminately employing this Herculean remedy. Some practitioners are uniformly in the habit of exciting salivation as speedily as possible, if fevers do not readily yield to to the first depleting measures. This practice cannot be to strongly censured. Most cases will get well without it, and, where it ultimately becomes necessary, in the fevers of the southern and western parts of our country, salivation may be induced in time to save the patient.

This is always a disagreeable alternative and, though the subsequent effects on the constitution are often trivial, yet they are not unfrequently of a most serious nature.

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It is a common opinion that the mercurial treatment secures against subsequent visceral derangements. This, however, does not appear to be, in all cases, well established, and, I think, I have seen this very effect from the too free use of the medicine.

Of wine, opium, carbonate of ammonia and other stimulants I shall say nothing until I come to treat of those fevers and conditions in which their use is indicated. Vesicatories sinapisms, rubefacients &c. often become important means in the management of fevers, and the manner of their operation is easily explained on the foregoing principles. It will not, therefore be necessary to reiterate what has been so often repeated.

Perhaps, it will here be thought irrelevant, but I would suggest an idea as to the prophylactic use of blisters.

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Might not a large one worn during the prevalence of epidemics, in conjunction with other means, give security against those diseases? As early as the time of Galen it was observed that in those countries where the plague was committing the wildest ravages, those were exempt who had issues plentifully discharging. Baron Larrey has remarked, in his Memoirs of Military Surgery, that the plague rarely attacks those whose wounds are in a state of copious suppuration, but, as soon as their wounds were cicatrized, they were equally susceptible with others, and that of those who were attacked under these circumstances few escaped death.

It is a well known fact that, in the states of Tennessee and Kentucky, boatmen and others, who have occasion to visit New Orleans in the sickly season, frequently

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contract a venereal gonorrhoea, as a panoply against the diseases of that unhealthy climate. Even a glut is cherished as conferring comparative security. With these and facts of similar import before us, the idea suggested above may not appear so unreasonable, and may at least be worth the experiment. Next year, I propose fully to test this point in New-Orleans.

We come now to say something of the particular forms of fever, and of their treatment. My subsequent remarks shall be confined to what has fallen under my own observation, in the state of Tennessee, commencing with

Intermittent Fever.

This is of frequent occurrence and wears the common livery. Now and then we meet with cases of great obstinacy,

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though, in general, they are successfully managed by the usual means. As there is in almost all of the diseases of that climate a redundancy of bile, evacuations of the stomach and intestines, by emetics and cathartics, should generally precede the use of tonics. After the necessary evacuations, the bark will commonly effect the cure.

There are cases, however, in which the bark cannot be employed, or is ineffectual, and here arsenic becomes an excellent substitute. In fact, in all chronic or obstinate cases, I habitually resort to it, being a medicine for which I had early conceived great partiality, from having seen its great efficacy in some cases which had resisted the usual remedies. It was, therefore, with no little regret I saw it loosing its former reputation, being spoken of unfavorably by some of the highest authorities.

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I have often used arsenic in a variety of affections, and have never witnessed those disagreeable consequences, which some have led us to apprehend. One effect said to be frequently produced by it I am much inclined to doubt; namely, dropsy and oedematous swellings. Not being much in the habit of thinking by precept, I determined to experiment and judge for myself. Accordingly the remedy was tried in a number of cases and in several in which there were, previously, oedema and considerable dropsical effusion, and always with success. Yet candor compels me to say that in these cases, it was combined with the decoction rad. senegae Instead of the dropsical appearances being increased or aggravated, they uniformly disappeared as soon as the chills were arrested.

The form in which I have used this article is Fowlers solution, commencing, for an

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adult, with 8 drops three times a day, to be increased, gradually, to twelve or fourteen. It may, nevertheless, be given in much larger doses, without the least danger, especially where its use has been habitual. - A friend of mine, in Louisiana is constantly in the habit of taking thirty drops three times a day, whenever he is admonished of the recurrence of the chills; and I am informed that some take forty. Whether arsenic be better adapted to the disease or to constitutions in southern than in more northern latitudes I cannot determine, but so striking is its efficacy that, in many places it will be extremely difficult for any article to supplant it in practice.

From the facility with which it is administered, arsenic is very well adapted to the cases of children, who always shew great repugnance to every thing that is

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bulky in the dose. With very small children I have rarely had occasion to use it. My practice in such cases is, after evacuating the bowels, which is to be repeated pro re nata, to direct the patient to be put twice a day, for a quarter or half an hour, into a tepid decoction of oak bark. Whether this practice has been adopted by any one else I know not. It is certainly most effectual, as I have never seen it fail. Should cases occur in which this will not succeed, other remedies may be combined. When visceral obstructions are complicated with intermittent fever this cannot always be cured, unless the obstruction be previously removed by a slight mercurial course.

Bilious Remittent Fever.

This, probably, differs but little from the same disease elsewhere. I have more

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frequently met with it than intermittents. These cases are generally ushered in by a chill, followed by pain in the head, back of the neck, loins and extremities, and sometimes, in the more violent attacks, by great prostration of strength and tremors of the whole body. There are sometimes suffusion of the face, turgescence of the vessels of the adnata, great intolerance of light or noise, and involuntary effusion of tears. The tongue is furred of a white or yellow colour and brownish towards the middle. Pulse generally full and bounding; respiration somewhat hurried; very often pain in the right hypocondre. Nauseous bitter taste in the mouth, with now and then attempts to vomit. The bowels costive or dysenteric; the urine scanty and high coloured.

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more violent cases, and the lancet is here almost the unicum remedium; but cases are occasionally encountered, with some modification of these symptoms, in which it is to be used with some circumspection. After venesection, an emetic of tartarized antimony, to be followed by a cathartic of calomel, in the dose of twenty grains with ten of jalap. The purge may sometimes be given without the emetic. It always brings away large quantities of vitiated bile, with evident relief from all the symptoms. In common cases these active measures will, at the commencement, cut short the progress of the disease and, with a little attention to the state of the bowels, all danger of a relapse is avoided.

But in the more obstinate attacks, or

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where remedies have not been timely employed, the disease assumes a regular form, with exacerbations daily or twice a day; sometimes, however, it assumes more of the intermittent tertian type. The cases are now to be managed by frequent purging, to remove the noxious accumulations in the intestines; by blisters to the head, neck or chest, as one or the other seems most to require or best adapted to their application; and by diaphoretics. Of these the common nitrous powders and spt. æth. nitrosi will answer every purpose.

Cold applications are not the least important of the means to employed in these circumstances. Aspersion or ablution with cold water and vinegar, sponges filled with cold water and laid to the cheeks or on the forehead, contribute much to the comfort of the patient. But of all remedies, when

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the system is properly prepared for it, cold affusion is the most delightful and efficacious. Whenever the primae viae are freed from their offensive contents and there is no evident local inflammation, this may be used with safety and advantage. The proper time for the administration is when the exacerbation is at its acme.

This is the most certain diaphoretic, the most soothing anodyne and the most powerful ~~diaphoretic~~ alterative. It not unfrequently happens that, the further progress of the fever is arrested and convalescence established from the first application. The increased secretion of heat is checked, the circulatory and nervous systems are tranquilized, a balmy sweat diffuses itself over the relaxing surface, followed by refreshing sleep, from which the patient wakes placid and serene. But even if all this be

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not attained, there is considerable abatement of the force of the disease, the succeeding exacerbation is much milder, and by a judicious repetition of this with other measures, the symptoms gradually subside and health is restablished.

By means of the sympathies between the skin and internal surfaces and viscera, the stomach is invigorated, thirst abated, the liver restored to healthy action, the morbid associations are broken up, the balance of the circulation and nervous influence restablished, the increased secretion of heat ceases, and the healthy functions resume their empire. Cold affusion, I believe, has never been previously employed in this form of fever. It is now, becoming quite common in that part of the contry where I first employed it.

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tried this remedy the effect was so striking as at once to bring it into great repute in that vicinity. The patient was a man, who had been laboring under fever for about two weeks. The attack commenced with the usual symptoms of bilious fever; copious evacuations had been used, without arresting its progress; and ~~the patient~~ he was gradually sinking under the disease. After opening the bowels, I directed two large buckets of very cold water to be thrown over him when the evening exacerbation came on. The patient was so weak that he could not be supported in bed without fainting. He was raised on a chair and the water poured on him, when he immediately rose up, and without assistance got to bed, becoming from that moment convalescent, it being unnecessary to repeat the

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application. In other cases I have found almost equal success.

If fevers of this form be not arrested towards the tenth day, sometimes much earlier, they assume more of the typhoid character; but of this I shall say more when I come to speak of that type of fever. There is often, in the progress of these cases, such extreme irritability of the stomach that nothing of any kind can be retained. The sight or name of any article of food or medicine, or of a phial or vessel containing them, excites violent efforts at vomiting, which harrasses the patient very much and presents no little difficulty to the practitioner.

This state of the stomach is often, may almost always, accompanied if not produced by accumulations of vitiated,

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irritating bilious matter in the intestines. Whilst this remains all attempts at palliating or relieving the gastric uneasiness will be abortive. Here then we have a difficult case, the perplexities continually increasing. To address the stomach is useless; enemata, therefore, are the only means we can resort to for freeing the bowels of those acrid, offensive accumulations. Injections of a mild nature are altogether ineffectual. They must be so powerfully stimulating as, per force, to revert the peristaltic motion of the intestines and determine it downwards.

In a case of this kind so great was the irritability of the stomach that, whatever could excite the idea of any medicine always induced violent retching and vomiting. In vain were several days consumed in fruitless attempts to appease this organ

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and evacuate the bowels. Seeing my patient sinking, and the urgent necessity of the case, I directed a drachm of gamboge to be dissolved in a pint of a common enema; of this one half was given and, in a few minutes, produced two copious evacuations of dark bilious matter of an intolerable odour. The stomach was immediately tranquilized and, by proper management, the patient recovered. Very frequently, also, it becomes necessary to support the patient by the rectum. In this way I have seen half a pint of light soup taken up every two hours, the strength continually increasing.

Bilious fever is not unfrequently combined with rheumatism. I have seen those who never before were troubled with pains of this kind, on being attacked with

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bilious fever, have all the symptoms of inflammatory rheumatism. Venesection and active mercurial purges will generally remove the swellings and other rheumatic appearances. It is fortunate that here the same treatment is applicable to both diseases, if they may be called distinct.

Convalescence is generally rapid. Considerable attention to diet and the state of the bowels is necessary, since relapses are not unfrequent from inattention to these particulars. — In warm climates, those who have once had what is called a bilious attack are often subject to recurrences of the same, or of dysenteric affections, or of cholera, from vitiated secretion or redundancy of bile. To correct this habit I have found nothing so effectual as the following prescription

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Pulverised colombo, flowers of sulphur and cream of tartar in equal parts, of this a drachm or two to be taken twice a day. If persisted in for a considerable time, this will rarely fail to effect a permanent cure.

Typhus Fever.

This form of fever I have rarely met with as the original disease. It is frequently as stated, when speaking of bilious remittent fever, the secondary or last stage of that, or of what is commonly called bilious pleurisy. Some years since, during the prevalence of the pneumonia typhodes, cases no doubt of genuine original typhus were of frequent occurrence, and it is still seen occasionally. Fortunately, the inhabitants of that delightful country are not yet subjected, in any considerable degree, to those cir-

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cumstances and agents by which fevers of this type are generated and propagated. I do not know that the disease there exacts any peculiarity of treatment.

Venesection will rarely be found admissible. — In some cases originally of this kind, where there is great torpor and prostration, with determination to the head, the warm bath and the application of cold water to the head, in the manner directed in the preceding part of this dissertation, will be found of the greatest utility in exciting reaction and disburthening the brain. After reaction has taken place, bloodletting is often demanded, in order to reduce the too great vigor of the circulation and prevent vascular or organic lesions.

When fevers, originally of another type, assume the typhoid character, it

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becomes a question whether or not we should immediately resort to a salivation. Doubtless a great majority of cases, with proper management, will get well without it, and yet this is indubitably the most certain means of effecting a cure. Indeed it is almost infallible. In all cases, therefore, where there is at the same time derangement in the great viscera, of the liver more especially, I would not hesitate to employ mercury in the most liberal manner. I once gave seventy grains of calomel in a day, combined with opium to prevent purging, and aided by inunction. No inconvenience followed and the patient was snatched from the most imminent danger. A considerable degree of ptyalism is sometimes necessary, as I have seen the fever return as the mercurial influence subsided, and have been again

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compelled to establish its peculiar mode of action.

Purging is indispensible in all fevers of the kind of which we are now speaking. In the more protracted stages, where there is extreme debility, it is to be used with great caution, as patients will sometimes sink very rapidly under active purging. I have even found it necessary, after one or two evacuations, to give an opiate to check the operation of a gentle cathartic, and to repeat this practice daily. The most manifest detriment is sometimes sustained from indulging a spontaneous diarrhoea. Of this we cannot be too cautious, as we may sometimes entertain a delusive hope that it will prove critical, but, before we are aware, the patient is sunk irretrievably.

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xxxently useful throughout every stage. The place for their application must be regulated by circumstances. Most generally, it will be found necessary to shave the scalp and envelope it entirely by a blister. This will be found in many cases to relieve delirium and restore tranquillity. As soon as the discharge from the vesicated surface begins to diminish the patient evidently becomes worse, and the epispastic must be reapplied. I have repeated it five times in the course of one attack, and always found that it relieved coma and delirium, & moderated nervous tremors, and frequently procured tranquil and refreshing sleep.

Sinapisms to the palms and to the soles of the feet appear, occasionally to do much good. I am, also, persuaded that, I have derived not a little advantage from re-

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bifacients. The spirit of turpentine rubbed along the spine will be found useful. In very low conditions I have moistened the surface of the whole body with it, evidently augmenting the force of the circulation and animal powers. This, therefore, in conjunction with other means, promises to be an useful remedy.

Diaphoretics may be employed, though I have but little confidence in their efficacy. No remedies have had so great reputation, with such slender pretensions. Camphor combined with the nitrous powders will, perhaps, do as well as any. These articles, however, often disagree with the stomach, and then their diaphoretic effect will not compensate for the irritation and loathing they thus produce.

Much more may be expected from cold applications local and general. Mr

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lutions with cold water and vinegar and sponges filled with water, applied in the manner heretofore directed, will afford the greatest relief to the most distressing symptoms. Nor less useful is the cold affusion in this than in the form of fever of which we last treated. So perfectly is the system under the control of these means that it may, not inaptly, be compared to the most sensitive differential thermometer. Intermitting their use for a short time, the surface of the body becomes dry and hot, the thirst insatiable, the nervous tremors, subsultus tendinum and delirium are much increased. Recurring to the cold applications, in a few minutes, we find ~~the~~ ~~find~~ the patient becoming tranquil and comfortable, with great mitigation of all the distressing symptoms. No diaphoretic is so certain as this.

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It may, also, be promoted by drinking cold water. Cold acidulated beverages are generally relished, and may be allowed in all forms of fever.

All noise and irritation of every kind should be most sedulously avoided, especially motion, or any thing that may require exertion on the part of the patient. I once saw a patient in typhus fever, who, at ten in the morning, was able to stand and to walk, in five hours a corpse, solely, I believe, from the fatigue and irritation of removing from an upper to a lower room, for the benefit of a freer ventillation. This too is a matter that should not be neglected as well as the strictest attention to cleanliness.

Stimulants of various kinds are requisite in this form of fever. Of all the articles of this class I have derived most advantage

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from wine and opium. When there is considerable coma and delirium, with nervous tremors, or if the bowels have lost their tone and diarrhoea appears, opium, in small doses, frequently repeated, will be found an invaluable remedy. But under these circumstances of extreme debility wine is emphatically the pabulum vitae.

An opinion now prevails to considerable extent and is, perhaps, obtaining ground continually, that the plan of treating typhus fever, in all its forms and under all circumstances, by purging and bloodletting will be found more successful than the stimulating and diaphoretic course formerly so much employed. This, however, still has advocates of the highest respectability. I shall not here take part in this controversy,

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I must, however, say that, in the typhus of the southern country, as it has fallen under my observation, venesection is rarely admissible and, although mild purgatives are of the utmost utility and must be daily repeated, yet, most assuredly they they are not to be exclusively trusted, and their use must be regulated by a sound, discriminating judgment.

The carbonate of ammonia, wine whey, camphor and the antispasmodics I have employed occasionally, but from none of them have derived such unequivocal benefit as from wine alone, or so diluted as to be acceptable to the patient. This is the Promethean heat, with which we can relume the dying embers and fan to a flame the half extinguished spark. So much have I been delighted with its wonderful powers, in the low, sinking

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stage of fever, that I shall ever esteem it entitled to the first rank among the means to be employed in these difficult circumstances.

In the administration of this article, also, it is necessary to exercise the hand of discretion, and, as some one has justly remarked, he is always safest whose physician has the soundest judgment. If with incautious hand we rudely dash the sickly flame, that now flickers in the socket, it is extinguished by the very means that were intended for its resuscitation. I need not say how necessary is the vigilant attention of the practitioner, and how much may be gained by his assiduity at the bedside of the patient. Here the tyro learns to throw aside all books, forms, precepts and hypotheses, and begins to study nature in the book of nature. Of

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such importance is a close attention to minutiæ in these critical circumstances that, the patient is scarcely safe unlesp his nurse be a skillful physician.

The quantity of wine to be given must be regulated by the effect produced. I once gave two quarts in twenty four hours, the patient being a boy nine years old. I found him apparently in articulo mortis, his extremities cold, pulse not to be felt at the wrist, his mouth open, eyes fixed, with now and then low, feeble muttering. He was placed before a large fire, his feet near it, epispastics applied to the arms and legs and wine poured into his mouth slowly, which he scarcely made an effort to swallow. In three hours he began to toß his head and mutter with more strength and violence. In twelve hours the heat and circulation were restored in the extremities, and by

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the proper administration of the stimulus, he in a short time became convalescent.

This case I have introduced as a specimen of the almost miraculous powers of the remedy and, at the same time, to shew what large quantities are sometimes necessary to support and restore a dying patient. Should it at any time be too freely administered, cold applications will counteract its influence and moderate the excess of stimulation.

We often have in these cases no little perplexity, in finding articles proper and acceptable for nourishment. Called upon to direct something, we find the patient loathes and rejects every thing our ingenuity may suggest. Though it may appear degrading the office of a physician to pander to a fastidious appetite, yet a strict attention to these small mat-

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ters is of primary importance, and, therefore, demands our diligent regard.

Convalescence is frequently tedious and a variety of troublesome secondary affections is sometimes to be encountered. Besides those commonly noticed, I have observed one which, though not of a serious nature, is occasionally very troublesome. After recovery from very violent, protracted attacks, the cuticle comes off, leaving the soles of the feet so tender as to prevent the person from walking even for months. This, I believe, is soonest relieved by going barefoot, or at least without stockings. These things may appear trifling, yet they demand some consideration.

Bilious Pleurisy.

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terially from the same in other places. Unlike most other pneumonic inflammations, it does not generally admit of very copious bloodletting. This, however, is not to be entirely precluded. Cups and blisters are equally demanded as in other inflammations of the thoracic viscera. Mercurial purges are of the utmost utility and in no case should they be omitted.

But all these means will often fail and the patient will be found sinking into a typhoid condition of the most imminent danger. In these critical circumstances I have found nothing to answer my expectations so well as the combination of calomel opium and nitre. To the use of this I was led rather by accident.

Notwithstanding the employment of all the common means, I saw my patient sinking into a very alarming condition.

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The incrusted tongue, increasing delirium, great oppression and difficulty of breathing, all supervening with giant strides, admonished me of the necessity of doing something decisive. I was, therefore, determined, as speedily as possible, to bring about a salivation, and, with this intention, commenced giving the patient, who was a girl twelve or fourteen years old, every two hours, calomel and nitre each five grains, opium half a grain.

In about twelve hours a gentle perspiration appeared upon the surface, the pain, delirium and difficult respiration were greatly relieved, in a short time the brown fur began to loosen upon the moistened tongue, and convalescence was speedily established. Encouraged by this success, I determined to test its efficacy, and have since been very much delighted

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Pneumonia Typhodes.

As this has not been epidemic in that part of the country for several years, and since I know but little of it from experience, my remarks on this subject will be brief. Nor have I introduced it here because I have any thing new to offer, but merely thought, en passant, it might be mentioned. The disease has been very justly denominated a Proteus and, I believe, the most contradictory modes of practice have been equally successful. ~~Expectan~~ Bloodletting was sometimes required, and I have known some of the most violent attacks promptly relieved by large doses of cayenne pepper, stewed in ardent spirits. Copious perspiration induced by taking large quantities of warm water into

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Dysenteric Fever.

As this may be considered an error loci, I shall but briefly suggest a very few observations on dysentery, as it appeared in Tennessee during the last two summers. In most cases a derangement in the functions of the liver preceded or accompanied the disease. Children, among whom it was very destructive, were at the same time much troubled with worms, which, in many, appeared to aggravate, if they did not originally produce the intestinal disorder. After all remedies have failed of giving the least relief, I have succeeded in curing children at once, by giving a brisk mercurial purge that brought away large numbers of lumbrici.

In most cases where derangement of the biliary organs was the cause of the disease,

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a large dose of calomel, at the very onset, followed by an opiate, would arrest its further progress. Sometimes a very large opiate alone had not less decisive influence. I have often used the spirit of turpentine, though I cannot say certainly with any advantage, unless where it acted as a vermifuge, which in children it did almost always. —

Nearly two years ago, meeting with some cases accompanied with profuse haemorrhage, I was led from analogy to employ the acetate of lead, and found it to exceed my expectation in checking the discharge and relieving tormina. Since then I have employed it in combination with various articles, as ipecacuanha, opium and the astringents, with increasing confidence in its efficacy. I have given it in doses of ten grains frequently repeated and never

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saw any unfavorable symptom from this liberal use of the medicine. The sugar of lead is now, I believe much used by some practioners in the state of Tennessee in dysentery, particularly by Doctor McIntosh of Knoxville.

Cholera Morbus

In all warm climates this is a disease of frequent occurrence, and often of a most alarming nature. The immense quantities of bilious and other matters, sometimes discharged from the stomach and bowels, are almost incredible. I have seen cases approaching in violence to what, in the East Indies is emphatically called Mort de Chien. In the more violent attacks the cholera is only secondary. At the onset it resembles more the bilious colic. Here the warm bath and the lancet are chiefly to be trusted. The spasms by these means being overcome,

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the bile begins to flow. The lancet should be used freely and is the best antispasmodic, and surest purgative.

I was called to a patient in the night and found him in the most excruciating agony, lying on his arms and legs, which were spasmodically contracted under him. A vein was freely opened with the intention of bleeding ad deliquium unless relief were sooner obtained. When near forty ounces had flown the muscles relaxed, the pain ceased, a mild cholera supervened and the patient was soon restored. Where the attack commences with vomiting and purging, after it has continued for some time, a large pill of opium as a suppository will often afford great relief to to these most distressing symptoms. Considerable fever sometimes attends and occasionally becomes to object of greatest concern.

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In a particular part of the State of Tennessee a febrile affection of a most curious nature is occasionally met with, which is of very rare occurrence. By the vulgar it is called the Milk Sick. So far as my information extends, this has not been often observed, nor except in particular situations. No one has yet, I believe, given a rational or satisfactory account of it. My knowledge of the disease is derived more immediately from that part of Tennessee adjacent to Alabama, and ~~immediately~~ west of Cumberland Mountain.

This majestic chain runs obliquely across the state from North East to South West, dividing it into East and West Tennessee. The eastern end of the state is a rough mountainous country and extremely healthy; intermittent and remittent fevers being rarely seen except upon the larger

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rivers. Here also the Milk Sick is unknown. Part of the western end of the state, adjacent to Kentucky, is equally broken and enjoys an atmosphere not less salubrious

As we proceed further to the south and west the face of the country becomes quite level and the soil extremely fertile. Vegetation in some places is incredibly luxuriant, the lofty forests and impervious undergrowth entirely excluding the rays of the sun, so that in warm weather moist exhalations, impregnated with noxious effluvia, are disengaged in great abundance. Dispersed over the country are numerous ponds, especially near the mountain. From the flatness of the surface the waters run off slowly, and in some places are quite stagnant. These causes combined, aided by the summer heat, become the prolific source of

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fevers of the intermittent and remittent type, sometimes in a very aggravated form.

Franklin county streaches along the foot of Cumberland Mountain 30 or 35 miles. This county is watered by Elk river and its branches. To the north and north west of this lies Bedford, watered by Duck river and its tributaries. These rivers, more than any other in the state are remarked for producing the species of fever above mentioned. This very hasty sketch of the medical topography of the country I have given, as it may throw some light on this enquiry.

As soon as settlements commenced in the county of Franklin, about twelve or fifteen years since, near the mountain, many cattle were lost from some unknown poison, the nature of which is still a mystery among the inhabitants. Occasionally,

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whole herds were found dead in some sequestered cove of the mountain. Attention was directed to the investigation of this matter, and subsequent observation has led to the following results.

It has been found that the poison, whatever may be its nature, is confined to certain spots at or near the foot of the mountain, in those coves which have a western or northwestern aspect. Those which open and look to the south are free from it. — The existence of the poison is of periodical recurrence, continuing from June to October. No cases of poisoning from this source having been observed before or after these periods. It appears, also, to have greater virulence in August and September than earlier or later.

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early for their morning food, they always suffer more or less from the poison. But after the sun has risen so as to dissipate the dews, they feed in those places with perfect safety. With the knowledge of this fact, many of the farmers were in the habit of penning their stock at night and until nine or ten o'clock in the morning, when they were turned out to range, without the hazard of poisoning. But, within a few years, a fence has been extended for many miles along the foot of the mountain, so as to exclude this nuisance; in consequence of which, cases are of much more rare occurrence than formerly.

The depredations of this insidious enemy are not, however, confined to the cattle. Not a few of the inhabitants have been its victims. Generally those who have suf-

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fered from this cause are supposed to have been poisoned by the flesh, milk or butter of those animals, that had previously taken this deleterious agent, and in which it had not manifested itself with sufficient violence to attract attention. Hence the popular name of the disease.

That much is the origin of this affection I have some reason to doubt; but so strong is common opinion to this point, that it may seem to argue no little scepticism to call it in question. This, however, should not shield error from scrutiny. It certainly affords a most curious and interesting subject for speculation. But, be this as it may there is less uncertainty on another point. Men may be infected as other animals by similar exposure. Lying on the ground in the poisonous tracts, or remaining there for several

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hours during the night, is always followed by an attack of the disease, which has occasionally been fatal.

In men the disease thus induced is a gastritis with some modification of the usual symptoms accompanying this affection, as produced by miasmata generally. The stomach is extremely irritable, the bowels torpid and obstinately costive, with great febrile excitement and determination to the head. There is, also, a peculiar odour emanating from a patient laboring under this disease, more especially as death approaches, which is, perhaps, the most striking diagnostic. But for this, it might sometimes be difficult to distinguish it from the more violent attacks of bilious remittent fever.

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kind. I have frequently met with very aggravated cases of bilious fever in places where the Milk Sick was common, and which the friends of the patients suspected to be of this latter character. I have even seen cases attended with black vomit, but the peculiar odour was wanting.

Of the treatment I can, of course, say nothing from experience. The popular practice, and that which has been adopted by physicians, is to purge actively. To open the bowels is the sine qua non, but to effect this is always extremely difficult. The most incredible doses of calomel and ol. ricini are sometimes given, aided by injections, without any effect. Whenever an evacuation is obtained, immediate relief, in some degree is the consequence. This is to be followed up by active purgatives.

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Blisters, diaphoretics, warm or cold applications as one or the other seems to be required and occasionally the most powerful stimulants are employed with advantage. Convalescence is generally tedious and relapses frequent, even at the distance of twelve months. The hair, epidermis and nails sometimes drop off, and some constitutions never recover from the shock.

I do not know that post mortem dissections have been made of the human subject. The stomachs of brutes shew in places marks of inflammation, and some of the ventres are said to have the appearance of being broiled or contracted by heat.

A considerable variety of opinion has prevailed as to the nature of this poison. Some have supposed it to be

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vegetable other mineral. Mushrooms, a species of weed bearing a black berry and some other vegetable substances have been suspected, but without evidence. The waters have been accused of this mischievous agency from mineral impregnation, but this is merely gratuitous conjecture. There are even some who thought it a mineral exhalation from imbedded ores, imbibed by the dews as it ascends. Any one, who knows the general fixed nature of the mineral poisons, will readily perceive the absurdity of this opinion. None seem to have a definite idea on the subject.

My own opinion is that it is a miasmatic exhalation. This I confess would be a strange notion to the people in that part of the country, but may not be the les correct for its novelty. When the pro-

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fession even know so little of the nature and phenomena of miasmata, it will not be expected that others should understand or be able to appreciate any reasoning on this subject.

During the summer months the heat ranges, at some time in the course of the day, from 80 to 90 of Farenheit. The nights are very cool, so that there is frequently in the twenty four hours a difference of temperature of 20 or 30 degrees. The excessive heat of the day produces copious exhalations of noxious effluvia from the ponds, rivers, marshes and forests; so rarefied that they are productive of little injury. When night approaches they become condensed by the colder atmosphere and, from increased gravity, begin to subside

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tracted by mountains and other elevated objects. In addition to this, there is commonly, at this season of the year, in the evening a western breeze, by which the nebulae and vapors are gently wafted towards the neighboring mountain. From its height they are impeded from passing over, and being driven into the recesses and becoming still denser, the more ponderous particles gradually glide down the declivities, which rise in amphitheatrical grandeur. The vortices in the centre are the hot beds of the poison.

Here then we may readily conceive that these deleterious miasmata, which, when rarified, produce the common autumnal fevers, have now acquired a degree of concentration and virulence sufficient to produce even a more violent disease than the Milk Sick, and, when taken in along with the copious

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That miasmata do occasionally acquire a degree of force and concentration sufficient to produce disease in brutes cannot be denied. The instances on record are numerous. During the prevalence of the malignant Yellow Fever at Cadiz in the year 1800, "the disease spread to domestic and other animals, and dogs and cats were seen dying with black vomit. The very horses died!"

With these facts we readily understand why those coves or recesses which have a southern aspect are exempt from this mysterious poison; and, also, why after the sun has dissipated and rarified the dews and vapors they are no longer noxious. I should, perhaps,

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have stated that, there are, I believe in the vicinity of all those contaminated districts, to the westward, ponds or marshes of greater or less extent, which are the fruitful sources of autumnal fevers.

As this dissertation has been protracted much beyond what I had anticipated, I feel that I ought, perhaps, to offer some apology, for thus transcending the limits prescribed by common usage. I must request that it be ascribed to the boundless nature of the theme, and not to any fondness for idle vagaries. To have said less on the different heads would have been mere mockery, but even this, it is feared, will be extremely irksome.